REMARKS/ARGUMENTS

Favorable reconsideration of this application is respectfully requested.

Claims 1 and 4-10 are present in this application. Claim 1 is amended and claim 2 is canceled by way of the present amendment.

Claims 1, 2 and 4-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. 6,031,326 (Suzuki et al.) in view of U.S. 5,677,590 (Matsuda et al.).

Claim 1 of the present application recites "maximum diametrical dimension of each electron beam passage hole (11) in a horizontal direction including a center axis of the electron beam passage hole." As an example, the "maximum diametrical dimension" corresponds to dimension D as described at page 14, line 10 to page 15, line 14 of the specification and as shown in the attached annotated reference drawing FIG. 3A. According to FIG. 3A, dimension D is the distance between dividing lines (labeled as Y1 and Y2), measured along a horizontal direction X. Dividing lines Y1 and Y2 extend in a vertical direction Y and pass through an outer edge of an electron beam passage hole 11. Claim 1 also recites "a region corresponding to 50% of the maximum diametrical dimension." This "region" corresponds, in the example of FIG. 3A, to dimension D50 indicated in the attached FIG. 3A. According to attached FIG. 3A, dimension D50 is the distance between dividing lines Y3 and Y4, measured along a horizontal direction X. Dividing lines Y3 and Y4 extend in a vertical direction Y. Y3 is closer to the center axis C than Y1 by a distance corresponding to D/4, and Y4 is closer to the center axis C than Y2 by a distance corresponding to D/4. The region defined by dimension D50 corresponds to a region where the electron beam mainly passes.

The magnetic field generated by the velocity modulation coils acts on the electron beams in the vertical direction Y, which pass through the electron beam passage hole 11. Therefore, it is advantageous that a projecting portion 10 is formed in a region (i.e., regions

Xout as shown in FIG. 3A) other than a region where the magnetic field generated by the velocity modulation coils acts on the electron beams (i.e. region defined by dimension D50 as shown in attached FIG. 3A). The present invention cannot be achieved by forming a projection portion 10 in just any portion of the electrode.

With the present invention, a location of the projecting portion is defined so that the projecting portion does not block the passage of the magnetic field acting on the electron beam in a vertical direction. Accordingly, a magnetic field generated by a velocity modulation coil can be made to effectively act on the electron beams, and the degradation of the velocity modulation effect can be suppressed.

The Office Action does not find any suggestion of the first electrode member of claim 1 in Suzuki et al., but asserts that Matsuda et al. suggests the first electrode member and that it would be obvious to combine the two references. However, Matsuda et al. does not indicate an optimal position at which a projection should be provided. In other words, it is difficult to obtain sufficient effects of a velocity modulation coil from a combination of Suzuki et al., which discloses a structure having a velocity modulation coil, and Matsuda et al. which discloses projections but does not explain the optimal location of the projections or the position of the projections taking into consideration where the magnetic field from the velocity modulation coils acts on the electron beams, as recited in claim 1. There is further no discussion in Matsuda et al. of any desirability or advantageous effect of locating the projections according to claim 1. Therefore, even if Suzuki et al. is combined with Matsuda et al., the combination fails to disclose the apparatus of claim 1.

It is respectfully submitted that claims 1 and 4-10 are in condition for allowance, and a favorable decision to that effect is respectfully requested.

Respectfully submitted,

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